A local look at the record-breaking Spring and May weather

Description

Both the month of May and the full spring season have been exceptional for the UK, as outlined in our recent news release. In this blog we look at the local detail of what has been an exceptionally sunny and dry few months.

Sunshine

Perhaps the most impressive of all the national statistics was the number of sunshine hours recorded across the UK. May 2020 was the sunniest calendar month on record for the UK, England and Wales. It has also been the sunniest spring for all UK countries.

As we have seen at the UK level, in May many weather station locations have also had their sunniest calendar month on record. A notable example of this is at the Radcliffe Meteorological Station in Oxford. This station has the longest continuous sunshine record in the world and it recorded 331.7 hours of sunshine in May 2020, beating the previous record of 310.4 hours set in July 1911. Data from this station stretches back to February 1880.

Top 10 sunniest ceremonial counties in May 2020

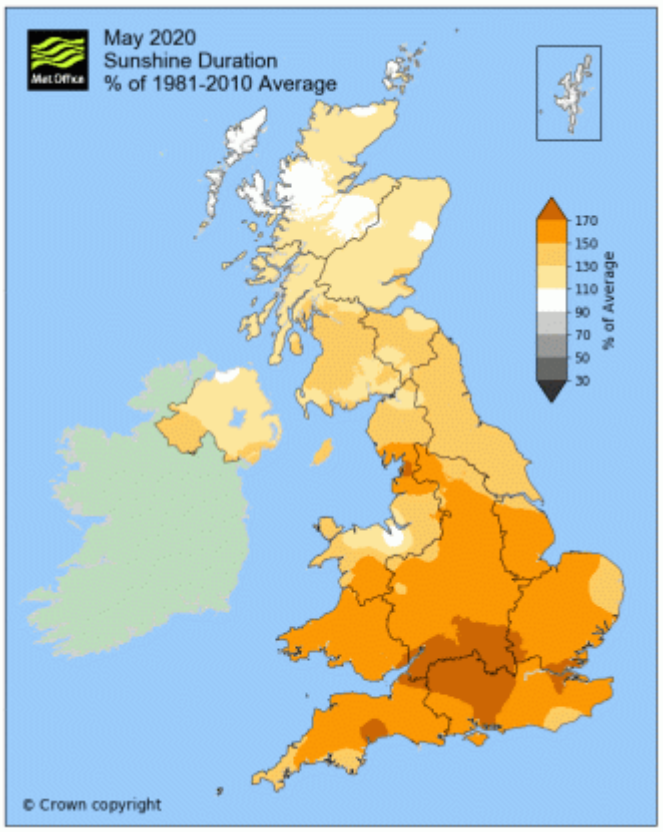
County	Sunshine hours	Anomaly (%)	Previous record (hours)
Isle of Wight	378.2	168	322.9 in 1989
Bristol	352.1	172	295.3 in 1948
Hampshire	345.4	171	304.0 in 1989
Berkshire	342.4	179	294.3 in 1989
West Sussex	338.2	162	311.2 in 1989
Wiltshire	335.5	173	274.4 in 1989
Kent	335.4	164	311.2 in 1989
Dorset	335.0	163	295.7 in 1989
Oxfordshire	330.7	175	279.0 in 1989
Essex	329.9	166	305.6 in 1989

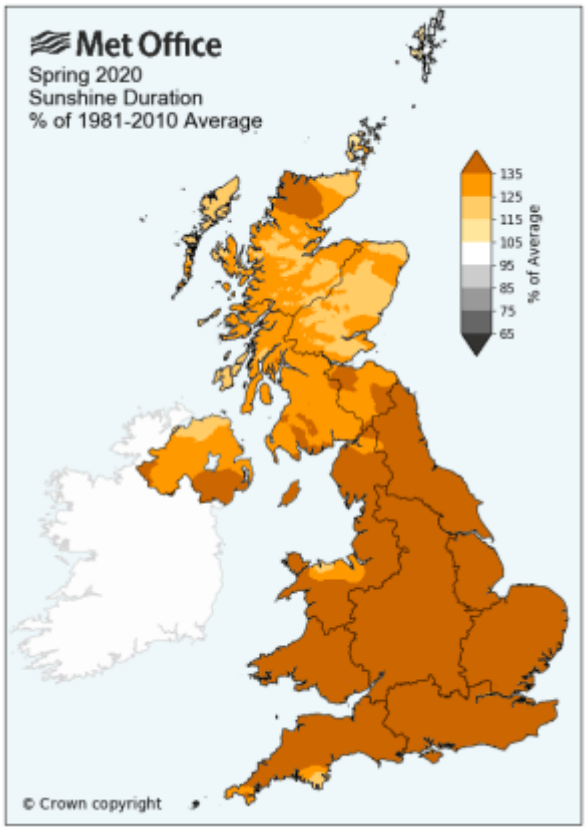
Shetland was the only location not to record more than its average sunshine hours, with 165.7 hours of sunshine in May, which is 92% of its average for the month.

For the spring season, the Isle of Wight was the sunniest location in the UK. It set a new spring sunshine record of 837.4 hours. The previous record was 718.6 hours recorded in the spring of 1990. All top ten sunshine counties in spring have set new records for the number of sunshine hours.

Top 10 sunniest ceremonial counties in Spring 2020

County	Sunshine (hours)	Anomaly (%)	Previous record
Isle of Wight	837.4	155	718.6 in 1990
Kent	784.8	159	691.1 in 1990
Hampshire	776.8	159	662.6 in 1948
Bristol	775.9	157	689.2 in 1948
Berkshire	775.1	167	643.5 in 1990
Essex	773.9	163	658.8 in 1990
West Sussex	765.5	152	690.3 in 1990
Wiltshire	763.0	162	659.7 in 1948
Cambridgeshire	752.1	164	619.5 in 1990
Dorset	751.1	150	689.2 in 1948





Rainfall

The next most striking meteorological statistic has been the lack of rainfall. England has had its driest May on record and this is reflected in north-east England and eastern Scotland, especially where a number of counties have recorded their driest spring on record.

Another exceptional fact is that the station at RAF Benson in Oxfordshire recorded no measurable rainfall during May, with rain gauges left at 0.0mm at the start of June. Over the course of spring just 77.6mm was recorded here; the average is 141.4mm. A total of 10 Met Office weather stations recorded 1.0 mm or less though May, the majority of these in south-east England.

There has, however, been significant rainfall in parts of the UK through May, the highest accumulation recorded at a Met Office site being 226.4mm at Achnagart in Scotland. The Achnagart station also recorded its wettest May daily rainfall in 51 years with 97.2mm of rain in the 24 hours ending 0900 GMT on the 23rd.

Top 10 driest ceremonial counties in May 2020

County	Rainfall (mm)	Anomaly (%)	Previous record (mm)
Northamptonshire	1.7	3	7.1 in 1990
Warwickshire	1.9	4	7.8 in 1896
Cambridgeshire	2.4	5	9.3 in 1896
Berkshire	2.5	4	5.6 in 1990
Hampshire	2.7	5	8.9 in 1991

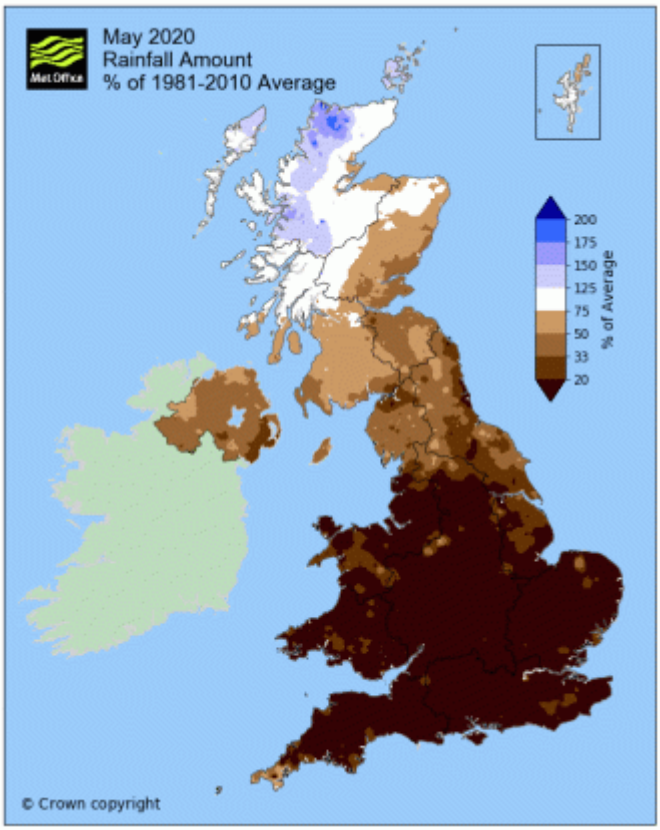
Suffolk	3.0	6	5.9 in 1989
Hertfordshire	3.4	6	5.6 in 1990
West Midlands	3.5	6	6.8 in 1896
City of London	3.6	7	No new record
Merseyside	3.6	6	8.0 in 1991

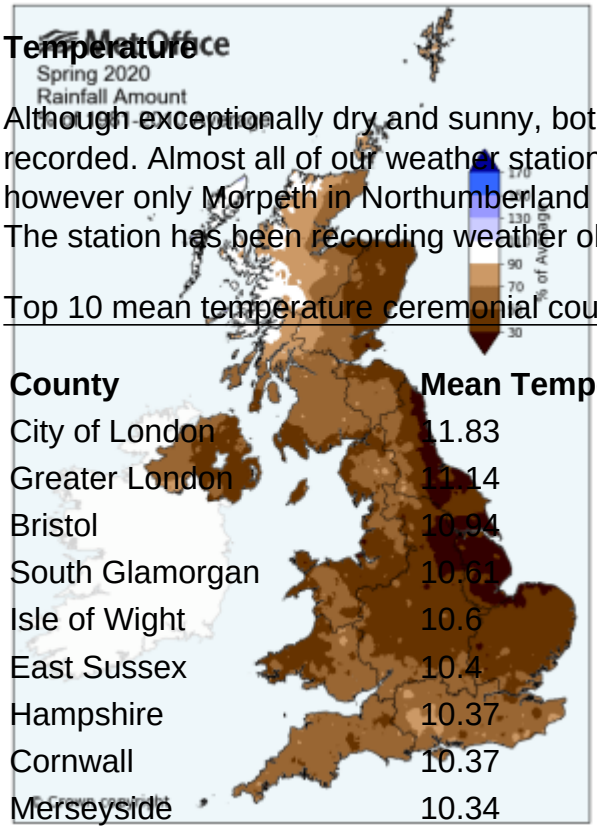
For spring, only the Western Isles recorded more than average rainfall, with 317.7mm, 101% of the season's average. In contrast most counties were well below average.

Spring rainfall top 10 driest counties

County	**Rainfall (mm)**	**Anomaly (%)**	**Previous record (mm)**
Tyne and Wear	36.4	25	56.5 in 1875
Lincolnshire	37.3	27	41.5 in 2011
East Riding of Yorkshire	41.5	28	46.8 in 2011
Nottinghamshire	42.8	30	45.2 in 1990
Norfolk	47.1	33	No new record
South Yorkshire	48.9	29	60.2 in 2011
Cambridgeshire	50.4	39	No new record
City of Dundee	54.4	36	58.5 in 1870
Suffolk	55.0	41	No new record
Bedfordshire	59.4	42	No new record

Tyne and Wear set its record for lowest spring rainfall, beating 56.5mm recorded in 1875. All counties in the top 10 table above except Norfolk, Cambridgeshire, Suffolk and Bedfordshire set new records for their lowest spring rainfall.





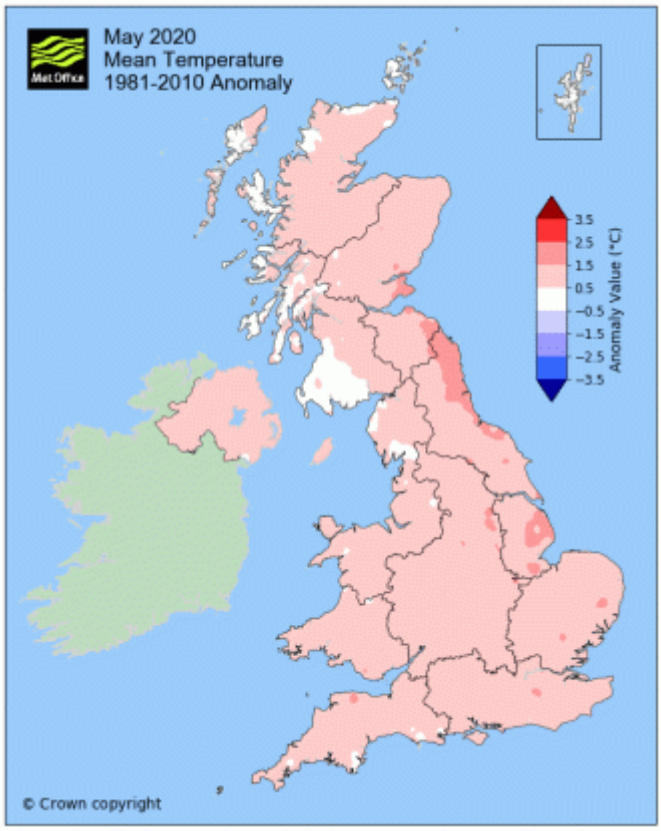
Temperature

Although exceptionally dry and sunny, both spring and May were not notable for the temperatures recorded. Almost all of our weather stations in the UK were above their average temperature for May, however only Morpeth in Northumberland set a new monthly average maximum temperature record. The station has been recording weather observations for 113 years.

Top 10 mean temperature ceremonial counties Spring 2020

County	Mean Temperature (°C)	Anomaly (°C)
City of London	11.83	1.18
Greater London	11.14	1.17
Bristol	10.94	1.30
South Glamorgan	10.61	1.33
Isle of Wight	10.6	1.13
East Sussex	10.4	1.19
Hampshire	10.37	1.19
Cornwall	10.37	1.19
Merseyside	10.34	1.05
Surrey	10.31	1.23

All counties other than Shetland recorded mean temperatures above the long-term average in May.For spring, all counties were above their mean temperature long-term average.



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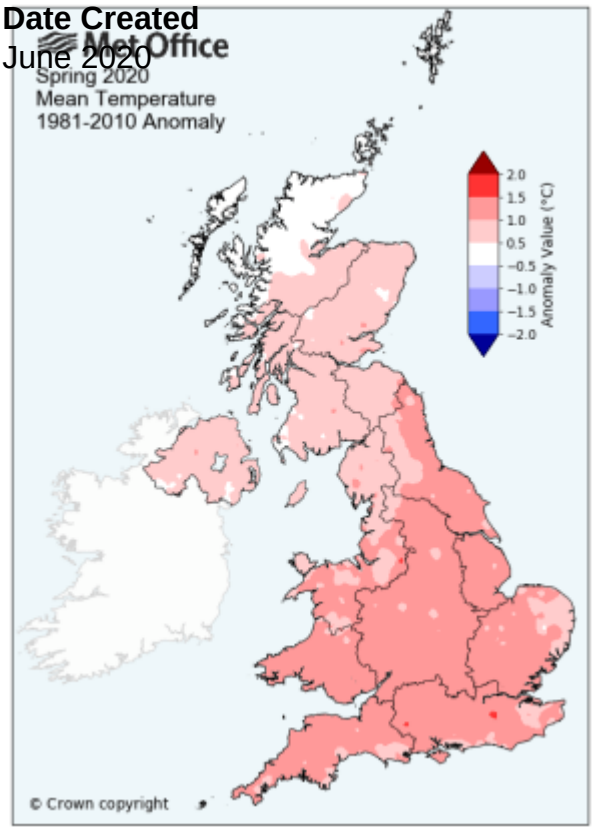


Why has Summer so far been wetter than Spring?

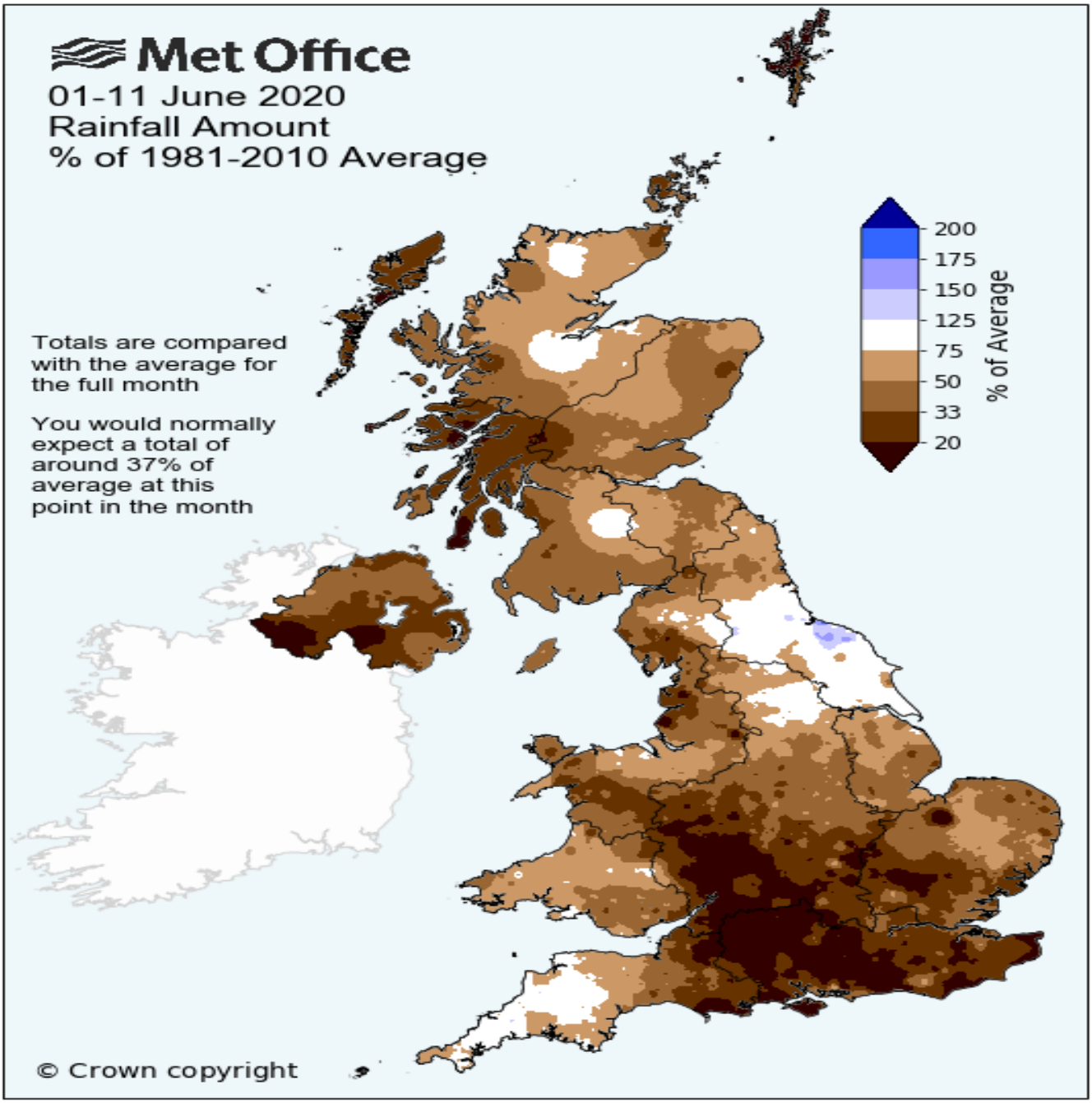
Description

At less than halfway through June, some parts of the UK have already had more rain than during the entire three months of spring. Parts of North East England in particular have seen most rain so far this month, with Durham already having reached its average rainfall total for June.

Why is this?

Spring 2020 was the sunniest spring on record and fifth driest for the UK overall. This was a result of the jet stream lodging itself to the north of the UK throughout much of spring, allowing high pressure and settled weather to dominate for most of the season. Many parts of the UK had less than 50% of their average spring rainfall and England had its driest May since records began.

However, from early June this 'blocking high' gradually broke down, allowing Atlantic weather systems to once again bring unsettled weather across the UK. Since then low pressure has prevailed, with spells of heavy rain and heavy showers for many, triggering a Met Office rain warning in places.



Where has been wettest so far this month?

Parts of north-east England have been especially wet – Loftus in North Yorkshire had 80.6mm of rain in the first 12 days of June, compared with just 32mm during the months of March, April and May combined. On 11th June Loftus recorded 41.2mm of rain – this is more rain in one day than it received during the entire spring season.

Other locations that have been wetter in June so far than Spring include:

Spring Rain June rain (to 11th)

TOPCLIFFE	31.8	37
LOFTUS	32	80.6
BOULMER	33.4	35.4
GRINGLEY-ON-THE-HILL	34.2	40
LEEMING	37.2	43.4
WAINFLEET NO 2	38.8	18.6
NORMANBY HALL	42.8	44
BRAMHAM	42.8	51.4
LECONFIELD	43.2	59.4

Other counties, such as Cornwall and North Yorkshire, are approaching their average June total rainfall.

What does this mean for the rest of Summer?

Although it's too early to determine what weather we can expect for the rest of summer, the second half of June looks to remain changeable, with a mix of sunny spells and scattered showers, these heavy and thundery at times. The best of the drier and sunnier weather will most likely be across northwestern parts of the UK, with temperatures on the warm side for most. Check out our long-range forecast for more details.

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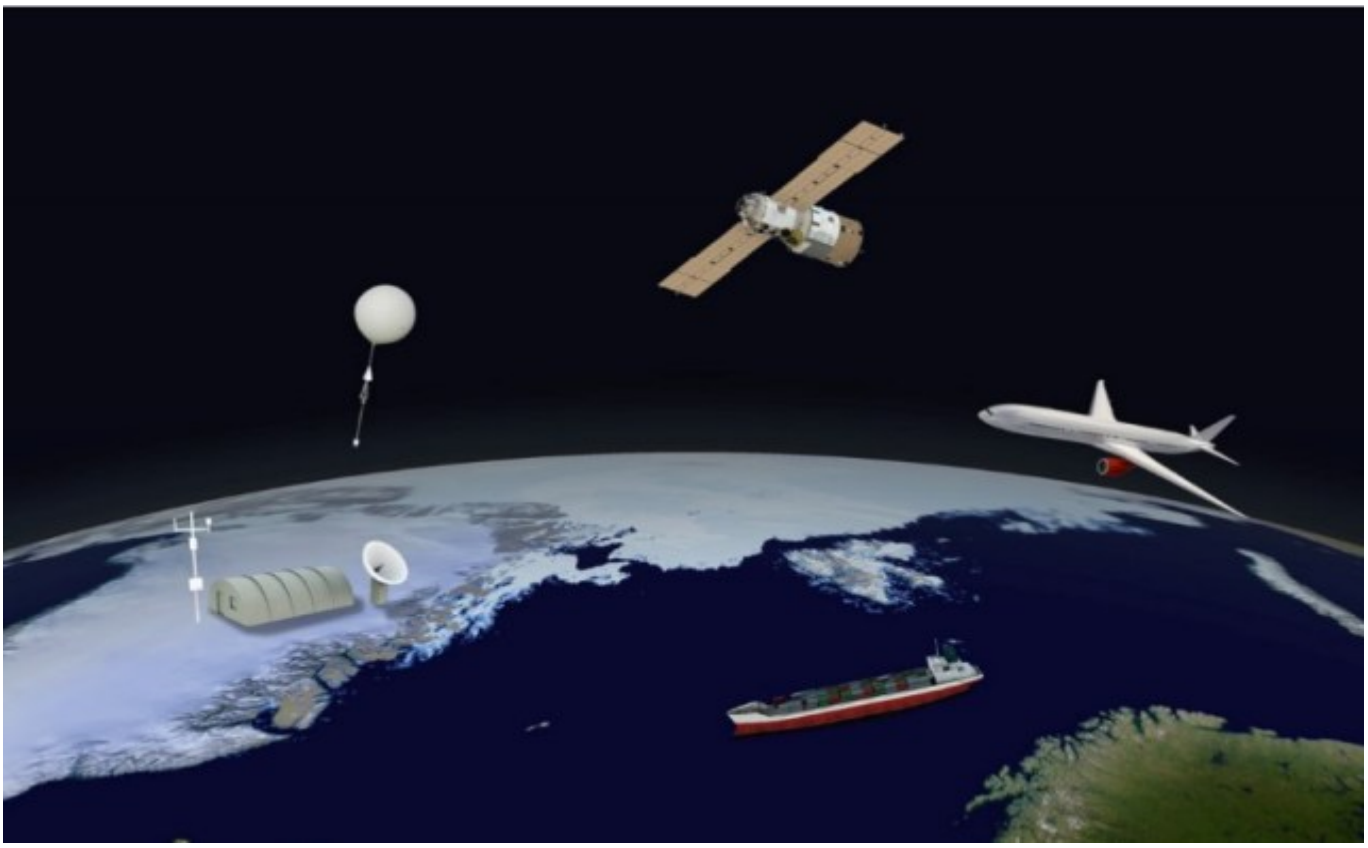
The impact of coronavirus on Met Office observations

Description

The ongoing COVID-19 crisis continues to affect the activities of society as a whole, and the weather observing network is no exception.

The pandemic has led to a sharp fall in the number of flights around the world and therefore a loss of aircraft-based observations, including temperature, wind and humidity readings, which are used by global numerical weather prediction (NWP) centres.



Satellite observations from space agencies, such as the European Space Agency and EUMETSAT, have not been interrupted and continue to provide key observational data, and the Met Office surface observing network here in the UK is almost fully automated and is therefore also relatively resilient to this type of crisis.

In some cases, national meteorological services are working with private satellite companies to help mitigate some of the adverse effects of the continued loss of aircraft-based observations. The Met Office has warmly welcomed the offer from the commercial satellite company, Spire, who have made their Radio Occultation (RO) data available to us free of charge for a limited period.

Dr John Eyre, Met Office Fellow, said “We have used RO data from other satellites for many years,

and we know their value for improving our weather forecasts. The offer of data from Spire is very welcome. It will make a valuable contribution to mitigating the loss of other weather observations during the COVID-19 period".

Spire Executive Vice President Corporate Development, Theresa Condor, said: "We are very glad that Spire could make a contribution of our weather data to the Met Office during this current crisis, demonstrating the kind of collaboration that is possible between public and private institutions to ensure the resilience of a critical service for people and businesses."

Radio Occultation (RO) samples atmospheric temperature and moisture using a receiver on a satellite and by measuring signals sent by global navigation satellite systems (GNSS), such as those from GPS satellites. As the signal between the two satellites travels through the atmosphere, it is refracted; the magnitude of this refraction depends on the temperature and water vapour content of the atmosphere, allowing relevant weather information to be derived as the signal between the two satellites passes through different levels of the atmosphere.

The Spire data will be assimilated into Met Office Numerical Weather Prediction systems to help improve our forecasting capabilities.

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Met Office scientists receive prestigious Royal Meteorological Society Awards

Description

Last month the Met Office Hadley Centre celebrated its 30th anniversary. With a focus on ground-breaking science it is fitting that three Met Office scientists have been recognised in this year's Royal Meteorological Society Awards, acknowledging their work in making exceptional contributions to weather and climate science.

The award recipients were:

- **The Buchan Prize:** Professor Adam Scaife, Met Office and University of Exeter
- **The Climate Science Communications Award:** Professor Richard Betts MBE, Met Office and University of Exeter
- **The L F Richardson Prize:** Dr Joanne Waller, Met Office and Dr Gerard Kilroy, Ludwig-Maximilians, University of Munich

This year's Buchan Prize was awarded to Professor Adam Scaife, Principal Fellow and Head of Monthly to Decadal Prediction at the Met Office Hadley Centre. Professor Scaife has gained international reputation as an outstanding scientist and this award recognizes his recent papers in Society journals on the dynamical mechanisms behind seasonal forecasts.

Professor Scaife said: *"I'm delighted to receive the Society's Buchan Prize and I'm deeply grateful for the acknowledgement this implies. I'd like to thank the scientists who made and supported the nomination and also acknowledge the Met Office for giving me the opportunity to pursue a research career in atmospheric science. Thanks also to the collaborators on my recent papers in society journals. I'm also indebted to the members of my research group; as well as the excitement of*

scientific discovery, it's the great fun I've had with the many inspiring, curious and interesting characters over the years that I am particularly grateful for!"

Professor Richard Betts, Head of Climate Impacts at the Met Office Hadley Centre, received the Climate Science Communications Award, recognizing both his outstanding research and his work in increasing the understanding of climate science among the public. Professor Betts is one of the most highly-cited climate scientists and has a vital role in communicating climate science in mainstream media, social media and public-speaking at high profile events – last year he was appointed MBE in the Queen's Birthday Honours List for his 'services to understanding climate change' and he has previously hosted a 'Climate Q&A' at Glastonbury Festival.

Professor Betts said: *"I feel honoured to have been awarded the Climate Science Communications Award of the Royal Meteorological Society for 2019 and am delighted to accept it.*

"Communicating the science of climate change is as challenging as it has ever been, maybe more so. This is a vast, multi-disciplinary field with enormous implications for society, and research is being conducted within a context of growing public concern and heightened passions for climate action, along with controversy over proposed ways forward... I hope I've been of some help in cutting through the noise.

"I very much appreciate the trust that the Met Office and University of Exeter have shown me in allowing me to represent our organisations... I look forward to continuing the conversation!"

Met Office scientist Dr Joanne Waller was one of the recipients of this year's L F Richardson Prize. This prize is awarded annually to an early career member of the Society for a meritorious paper published in a Society journal. Dr Waller received the prize for her paper that analyses a technique for observation uncertainty estimation. This article forms part of her series of innovative papers which reported significant advances in understanding and implementing new observation uncertainty

techniques, resulting significant improvements in Numerical Weather Prediction forecast skill.

Dr Waller said: *"I am delighted and honoured to receive the L F Richardson Prize for my paper 'Theoretical insight into diagnosing observation error correlations using observation?minus?background and observation?minus?analysis statistics'. Thank you to my fellow authors and the Royal Meteorological Society!"*

This year the Royal Meteorological Society will celebrate the awards digitally, showcasing each of the worthy winners on their website and social media channels throughout this week.

The full list of RMetS award recipients for 2019 can be viewed here.

RMetS
Royal Meteorological Society

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Global temperature: how does 2020 compare so far?

Description

The Earth's average temperature has increased by about 1 degree C since pre-industrial times, which for the climate record is calculated as the period 1850-1900.

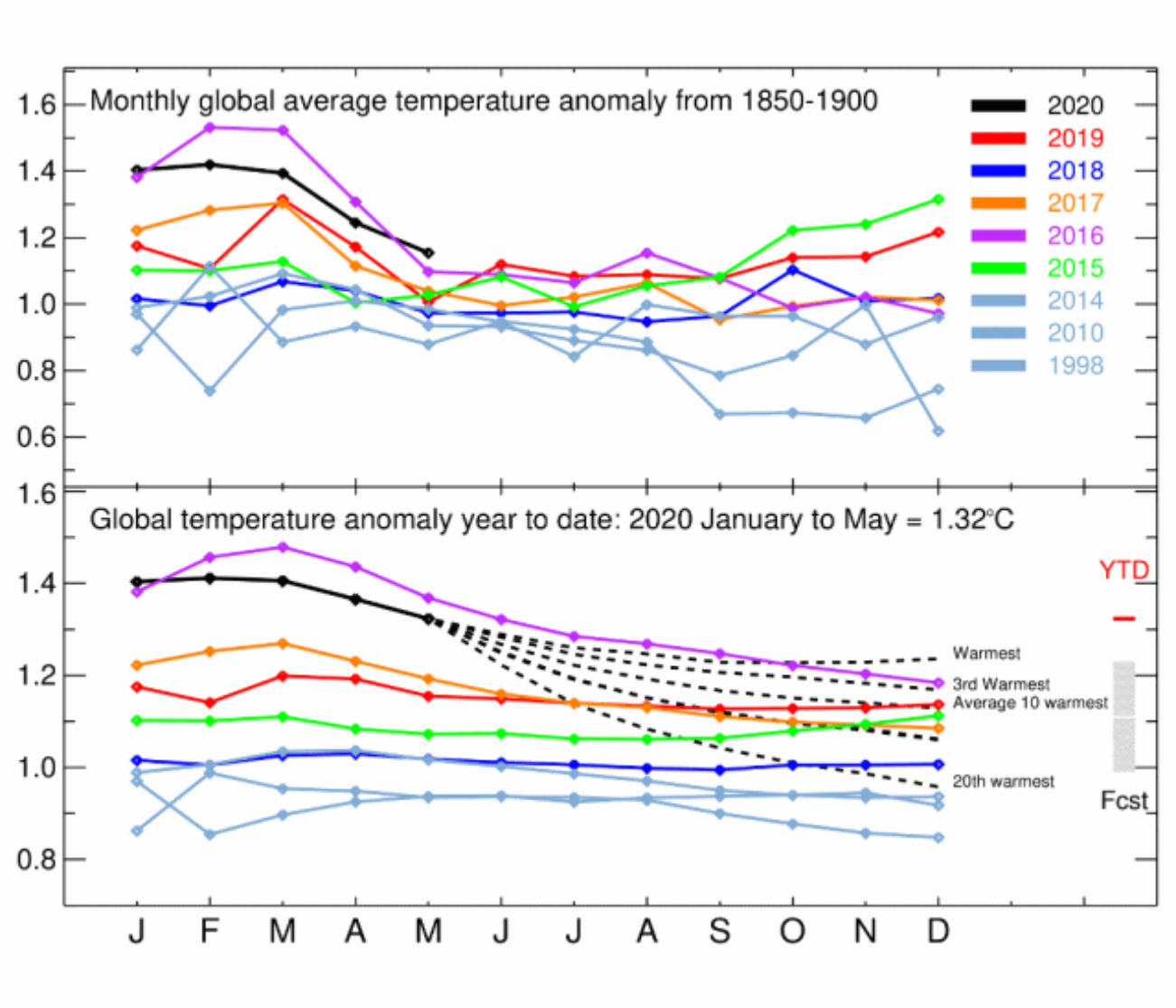


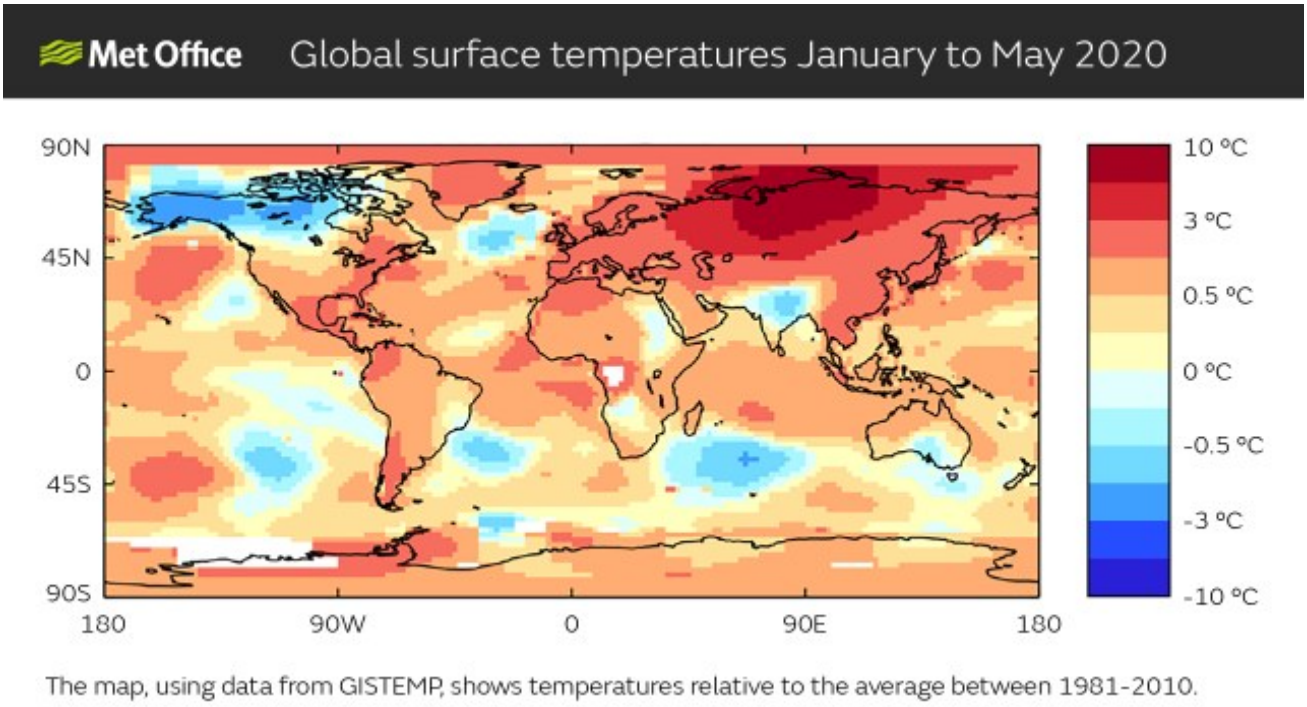
Figure shows values from GISTEMP, NOAAGlobalTemp and HadCRUT4 relative to the period 1850-1900.

Although this is an average, some regions are experiencing a much faster rate of warming. Nowhere is this more apparent than parts of the Arctic, where melting sea ice is creating areas where heat from the sun is absorbed by darker ocean water, rather than being reflected back into space by highly reflective sea ice. This process is a key contributor to Arctic amplification of the warming rate and is an

expected consequence of climate change. However, this is only part of the story.

Parts of northern Eurasia have been experiencing extremely high temperatures this year. Monthly average temperatures were more than 10.0 C above average in some places, due to a combination of climate change and extreme climate variability.

The extra heat can be traced back to the record high Indian Ocean Dipole in late autumn 2019. This led to a strong winter jet stream leading to extreme late winter warmth over Eurasia and a supercharged stratospheric polar vortex leading to persistence into spring. Once the higher than normal temperatures were established reduced ice and snow only exacerbate the warmth.



Global temperatures for 2020 from January to the end of May.

This record-breaking heat in northern Eurasia has helped to propel monthly global temperatures and has fuelled media headlines about 2020 being on track to be the warmest year on record globally. But is that going to be the case?

Whilst there have been some record months, this year, overall 2020 is still not running at record temperature compared to 2016 – the warmest year for global average surface temperature. Prof Adam Scaife is the Head of Met Office Long Range Prediction. He said:“We are likely to have seen the most extreme global temperatures already this year as La Niña is now developing and the final value is likely to fall back into our forecast range of 0.99 to 1.23 C”. So while 2020 is running very high, there is no guarantee of a record this year.

Note: The global forecast for 2020 was produced in December 2019.

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